Tech and innovation trends in the insurance industry

Pascal Marmier, Swiss Re
Which ones are opportunities … or challenges?

Source: Web site on AI influencers
Period of Rapid Change Accelerated by Technology

New Modes of Consumption

Emergence of New Risks

Technology Companies

Geopolitical Issues

Consumer experience & Sharing, Gig Economy

• Cyber (commercial & personal)
• Autonomous mobility & transportation (cars, trucks, planes)
• Manufacturing with new materials (3D printing)

Issues of trust and risk for society, economy

• Artificial Intelligence
• Privacy
• IP

New Industry structures

New Risk pools

Impact on value chain (automation)
Tech Transformation
Tech transformation: the drivers

- Mobile
- Internet of things
- Research data

- AI / RPA
- Chatbots
- Personalization

- Numerous use cases in industry
- Systems / Apps

- Blockchain
- Emerging marketplaces

Explosion in data (Big data)
Human Machine Data sharing
Data analytics
Data distribution
Impact on the value chain

Tech Transformation of Thinking

- Sensors
- Data
- Information
- Decision
- Action

Leaders

Tech as support

Product design /development
Pricing/underwriting
Distribution
Policy/claims management

IloT
Big Data
Machine Learning
AI
Automation

Impact on the value chain

Tech as support
Technology is affecting the insurance value chain

**Digitalisation**
- Robotics/Telematics/Internet-of-things (IoT)/wearables offer **usage-based insurance** opportunities
- Emerging risks such as cyber
- Social-network insurance groups

**Information Capture and Analysis**
- Use of Big Data/analytics to identify **new claims drivers**
- Predictive/Prescriptive underwriting techniques
- Artificial intelligence (AI) to hone risk assessment

**Virtual Value Chain**
- Position insurance as more customer-centric
- Increase frequency of interaction
- Use Big Data/analytics for micro market **segmentation and personalization**

**Physical Value Chain**
- Customers prefer multi-touch, omni-channel interaction
- Smart devices
- Less face-to-face engagement
- Scope for gains in efficiency in offline channels
- AI-driven Robo-advisors

- Use of Big Data to reduce fraud and improve claims processes
- **Self-service apps** to improve customer post-sales experience
- Blockchain applications for smart contracts and claims administration

Source: Swiss Re Institute.
Swiss Re Tech transformation strategy – more than a vertical

- **Digitization**: Ability to convert objects into digital representations
- **Computational power**: Ever increasing affordable computational power
- **Ubiquitous connectivity**: Ubiquitous broadband connectivity, as provided by modern Telecommunication
- **Real-time access**: Real-time access to knowledge and talent

- Increase our clients competitiveness
- Improve our value chain
- Leverage potential of data
Machine Intelligence refers to the interplay between Artificial Intelligence, Machine Learning and Cognitive Computing.

- **Learn** through interaction with humans.
- **Identify patterns** and extrapolate for prediction.
- **Use data & predictions** to reason about decision making.

These three disciplines are very broad and specific capabilities are not interchangeable.
Support/predict underwriting decisions by combining banking and insurance data

**Banking Data**
- Cash withdrawals
- Card payments
- Banking transfers

**Underwriting Data**
- Anonymized data
- Type of health benefit
- Standard/sub-standard risk pool

- Additional reliable and high volume data source for UW
- Banks posses highly standardized transactional data
- Transactions could serve as proxy of lifestyle behavior of individuals

**Predictive Model**
- Model predicts standard/substandard classification based on banking data
- Underwriting data enriched with lifestyle predictors extracted from banking data
- Shorten list of Q&A during UW process
- Indicate whether bank client should be pre-approved or a more detailed UW process is required

**Machine Learning**
- Model predicts standard/substandard classification based on banking data
- Underwriting data enriched with lifestyle predictors extracted from banking data
- Shorten list of Q&A during UW process
- Indicate whether bank client should be pre-approved or a more detailed UW process is required
Machine Intelligence offers applications in various fields

**Insurance Implications**
- Cross Selling and Churn
- Fraud detection in claims
- Claims prevention
- Risk assessment and pricing

**Voice**
- Virtual Assistants
- Digital Health: voice as marker

**Vision**
- Autonomous Vehicle
- Facial Analytics
- Images to immediately provide coverage – home or car

**Text (mining)**
- Insights from contracts
- Patterns in news (trends)
Where is your portfolio performing well or poorly within a state of business? How can you quickly and efficiently highlight loss performance by postal code and additionally forecast future performance in those areas?

**Big Data Methods & Machine Learning**
- Multi-year client claims and policy data
- Hosted on Swiss Re infrastructure
- Aggregates and forecasts accident frequency, severity, loss ratio, and policy volume by postal code

- Semi-autonomous tool
- Predictive and visual analytics
- Portfolio reporting capability

**Benefits**
- **Automatic scoring** of all incoming claims based on identified cost drivers
- Predict future expected procedures costs given disease and comorbidity development paths
- Manage highest risk-scored claims to effectively contain costs

**Client Success Story:** Analyzed >130 zip code areas for client portfolio assessment
Blockchain
### Blockchain in a nut shell

#### Distributed Ledger
- *keeping score of who owes what to whom*

- **OLD WORLD**: each hold and repeat data in own ledger
- **NEW WORLD**: shared, immutable data on a distributed ledger

**Cedent A is reinsured with Reinsurers B and C**

#### Cryptography
- *unique combination of technology, consensus finding and security*

- **OLD WORLD**: privacy, security and regulatory concerns
- **NEW WORLD**: public/private keys and consensus algorithms

**B and C should not see certain things of each other**

#### Smart Contracts
- *decentralise and automate authorization and authentication*

- **OLD WORLD**: labour intensive and manual processes
- **NEW WORLD**: “self executing” contracts

**Legal (contract) logic is put into computational logic**

---

**Swiss Re**
Industry verticals forming blockchain consortia potentially redefining future risk transfer landscape

Blockchain-based:
- Data autonomy
- Trade-secret protection
- Distributed clearance
- Network-driven
- Transparent end-to-end compliance
B3i Value Proposition – Unlocking improvement potential across insurance industry

B3i

Unlocking improvement potential across insurance industry

Typical Challenges

- Contract certainty
- Counterparty data and risk
- Manual processes
- Pairing
- Latency
- Data duplication and inefficiency
- Fraud risk
- Settlement and reconciliation latency

Simplified Industry Value Chain

The Insurer - Reinsurer Interaction

- Risk underwriting
- Policy / Premium Management
- Claims Handling
- Financial Settlement

- Insured
- Insurer
- Reinsurer
- Retrocession
- Capital Markets

Swiss Re
Swiss Re expects a range of benefits

**Working Capital Improvement**
Faster and more efficient premium and claims settlement and optimised liquidity management

**Operational Efficiency and Risk Reduction**
Reduction of contract uncertainty, reconciliations and process inefficiencies

**Quality and Integrity of Data**
Normalised and high-quality data in a shared source with central control over integrity and easier auditing

**Foreign Exchange Management**
Accelerated FX transactions and consistent valuation

**Positive Impacts:**
- Combined Ratio
- Improved liquidity
- Risk Reduction
All this is Powered by Big Data

People Leave Data All the Time

Opportunity to Personalize

Better Decision Making

Transactional Efficiencies

Follow Along To See How Engagement is an Insurance Opportunity
Ecosystems and consumer engagement – generating value out of tech
Platforms and ecosystems offer new business models and integrated customer journeys

- Content providers
- Dashboard
- Connectivity
- Partnerships
- Content
- Services
- Devices
- Energy & Utilities
Platforms and ecosystems offer new business models and integrated customer journeys.

Awareness

Consideration

Advocacy

Retention

Purchase

<table>
<thead>
<tr>
<th>Researched</th>
<th>Applied</th>
<th>Took Med Exam</th>
<th>Received Policy</th>
<th>Provided Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relieved Just 30 min. Easy peasy.</td>
<td></td>
<td>Impressed That was fast.</td>
<td>Empowered I’ll give 5 stars.</td>
</tr>
<tr>
<td></td>
<td>Motivated I’ll cross off companies without a calculator</td>
<td></td>
<td>Appreciative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hopeful Good price. No exam. I’ll take it.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annoyed Huh? Why do I need an exam?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Oct '16 | Nov - Feb | Mar | Apr | Apr 5 | Apr 6 '17 | Apr 7 | Apr 11 | Apr 13 | Apr 20 '17 |
Ecosystems and insurance

**Consumer engagement**
- Customer is at the center of any ecosystem
- Mobile phone as tool to serve most of the customer needs

**Features**
- Data is shared across service providers without needs for additional work from the customer
- Network effects: value of services or data serve several players or customers in the ecosystem

**Role of insurer**
- Partnerships are essential to create and derive value.
- Role can evolve from stakeholder to orchestrator of an ecosystem.
- Use but also share analytics and risk assessment with other in the ecosystem. Think of offering “data as a service”
Ecosystems are expected to emerge in place of traditional industries by 2025.
Ecosystems arise when services can be digitalized and there is a large amount of data.
For Example: Life & Health risk exposure of corporate and individual risk portfolios could be regularly reassessed based on data insights.
Example of consumer engagement and link to health (simplified UW)
How to Start Innovation Journey
**Different ways to organize your tech strategy**

<table>
<thead>
<tr>
<th>Insurers' technology strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Venture investments</strong></td>
</tr>
<tr>
<td>Invest in InsurTech start-ups with a proven business model, product, customers, first revenues</td>
</tr>
<tr>
<td><strong>Start-up partnerships</strong></td>
</tr>
<tr>
<td>Insurers run pilots with start-ups, act as capacity providers, offer claims management expertise</td>
</tr>
<tr>
<td><strong>Innovation labs and accelerators</strong></td>
</tr>
<tr>
<td>Nurture in-house teams, and less mature start-ups. Turn ideas into business applications. Insurers support with initial funding and networks</td>
</tr>
<tr>
<td><strong>Contracts with large tech vendors</strong></td>
</tr>
<tr>
<td>Consulting for business model innovation. Multi million dollar projects to tap expertise in business processes, tech and integration</td>
</tr>
</tbody>
</table>

Source: Swiss Re Institute, Expertise paper, Technology and insurance: themes and challenges, June 2017
It’s not about the tech, it’s about interacting and working with people

• Talents
  – Lots of new talents because the industry is attractive
    – Data scientist team at Swiss Re
    – New skills needed: underwriters need to access new sources of data
• Approach to innovation
  – Try, experiment -> need for speed because it’s impossible to anticipate far ahead in the future
  – Lean methodology / Hackathon / Prototyping
• Look for partners – collaboration is key
  – Internal collaboration across functions is often the first step. Create dedicated teams
  – Accelerators are becoming trusted partners to create winning corporate - startup collaborations
• Different way to approach projects
  – KPIs are different: speed of implementation, ROI
Resources

VC number
https://techcrunch.com/2017/07/22/vcs-love-insurance-even-if-you-dont/

Startups changing insurance

McKinsey view on digital insurance

Legal notice

©2017 Swiss Re. All rights reserved. You are not permitted to create any modifications or derivative works of this presentation or to use it for commercial or other public purposes without the prior written permission of Swiss Re.

The information and opinions contained in the presentation are provided as at the date of the presentation and are subject to change without notice. Although the information used was taken from reliable sources, Swiss Re does not accept any responsibility for the accuracy or comprehensiveness of the details given. All liability for the accuracy and completeness thereof or for any damage or loss resulting from the use of the information contained in this presentation is expressly excluded. Under no circumstances shall Swiss Re or its Group companies be liable for any financial or consequential loss relating to this presentation.